

AMENDMENTS TO THE CLAIMS

Claim 1 (currently amended): A quantum-dot LED comprising:

a substrate;

[[a]] an n-type semiconductor layer formed on the substrate;

at least one ~~an~~ insulator layer formed on the n-type semiconductor layer and provided with a plurality of holes;

quantum dots formed by filling the holes; and

a p-type semiconductor layer formed on the insulator layer in which the quantum dots are formed.

Claim 2 (currently amended): ~~A quantum-dot LED comprising:~~

~~a substrate;~~

~~a n-type semiconductor layer formed on the substrate;~~

~~a first insulator layer formed on the n-type semiconductor layer and provided with a plurality of holes;~~

~~quantum dots formed by filling the holes;~~

~~a barrier layer formed on the first insulator layer in which the quantum dots are formed;~~

~~a second insulator layer formed on the barrier layer and provided with holes and quantum dots like the first insulator layer;~~

~~a p-type semiconductor layer formed on the second insulator layer.~~ The quantum-dot LED according to claim 1, wherein the insulator layer comprises a first insulator layer formed on the n-type semiconductor layer and a second insulator layer formed on the first insulator layer, and the quantum-dot LED comprises a barrier layer inserted between the first insulator layer and the second insulator layer.

Claim 3 (original): The quantum-dot LED according to claim 2, wherein the first and second insulator layers formed interposing the barrier layer therebetween has a multi-layer structure.

Claim 4 (currently amended): The quantum dot LED according to claim 2 ~~or~~ 3, wherein the barrier layer is of one selected from the group consisting of GaN, GaAs and GaP.

Claim 5 (currently amended): The quantum-dot LED according to claim 1 ~~or~~ 2, wherein the holes are a nano-hole.

Claim 6 (currently amended): The quantum-dot LED according to claim 1 ~~or~~ 2, wherein the holes have a size range of 1 nanometer to 100 nanometers.

Claim 7 (currently amended): The quantum-dot LED according to claim 1 ~~or~~ 2, wherein the quantum dots are formed from one selected from the group consisting of InGaN, InGaAs and InGaP.

Claim 8 (currently amended): The quantum-dot LED according to claim 1 ~~or~~ 2, wherein the quantum dots comprise an upper surface being in contact with the p-type semiconductor layer, and a lower surface being in contact with the n-type semiconductor layer.

Claim 9 (currently amended): The quantum-dot LED according to claim 1 ~~or~~ 2, wherein the size and/or density of the holes are/is determined by deposition time of the insulator layer.

Claim 10 (currently amended): A method for fabricating a quantum-dot LED, the method comprising the steps of:

forming ~~[[a]]~~ an n-type semiconductor layer on a substrate;

depositing a first insulator layer having first holes on the n-type semiconductor layer;

filling the first holes of the first insulator layer to form first quantum dots; and

depositing a p-type semiconductor layer on the first insulator layer in which the quantum dots are formed.

Claim 11 (original): The method according to claim 10, further comprising the steps of:

- (a) after the step of forming the quantum dots, forming a barrier layer on the insulator layer in which the quantum dots are formed;
- (b) forming a second insulator layer having second holes on the barrier layer; and
- (c) filling the second hole of the second insulator layer to form second quantum dots,

wherein the steps (a), (b) and (c) are repeated at least once.

Claim 12 (currently amended): The method according to claim 10 or 11, wherein in the step of depositing the insulator layer, the size and/or density are/is determined by deposition time of the insulator layer.